

Application No.: 09/240,632

Docket No.: 20402-00568-US

REMARKS

Claims 1, 3-13, 33, 37-40, 42-43, 46-49, 51, 53-55, and 57-73 are pending in the application. Claims 1 and 3-13 are allowed. Favorable reconsideration of the rejected claims is requested.

Withdrawal of the objection to the claims is requested. The claims have been amended to avoid the concerns noted in item 1 of the Office Action. Should any further cooperation with the undersigned be necessary to resolve any ambiguities in the claims, the Examiner is urged to contact him at the telephone number below.

Withdrawal of the rejections to claims 45 and 56 is requested in that the claims have been cancelled.

Withdrawal of the rejection of claim 33 under 35 U.S.C. § 102(b) as being anticipated by Furuya (U.S. Pat. No. 5,577,087), is requested. Claim 33, which has been amended, describes the type of transmission system for transmitting I-Q baseband signals. The system employs as a pilot symbol the QPSK signal which is also a bit of the information signal. Thus, the first symbol is demodulated using the second QPSK signal as a pilot signal.

Turning to the Furuya (U.S. Pat. No. 5,577,087) reference, a system employing 16QAM and QPSK is described. The 16 QAM and QPSK signals are selectively switched, and demodulated with a reference signal which is not either the QPSK or 16 QAM information signal. As the present invention provides for demodulation using a pilot symbol which is also an information signal, the subject matter of the present application is neither anticipated nor rendered obvious by Furuya (U.S. Pat. No. 5,577,087).

Withdrawal of the rejection of claims 33, 37-40, 42-47, 49, 51 and 53-58 rejected under 35 U.S.C. § 102(b) as being anticipated by Seki et al. (EP 0734132 A2) is requested. The system described by Seki et al. (EP 0734132 A2) requires not only a QPSK information symbol, but also reference symbols for carrying out the demodulation of the signal. The reference symbol is fixed data, which is not part of the main information being transmitted. This is to be distinguished

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from the present invention which does not utilize any reference symbols, but rather demodulates the first signal using the QPSK symbol which carries information and is not strictly a reference signal.

As the cited references fails to disclose the particular scheme for demodulating a first signal, using the second information signal, it cannot yield or disclose the subject matter of the rejected claims.

Withdrawal of the rejection of claims 48 and 59 under 35 U.S.C. § 103 as being unpatentable over Seki et al. (EP 0734132 A2) is requested. As noted with respect to the previous rejection, the present invention employs the use of first and second modulation techniques. The second modulation signal is used as a pilot signal for the first modulation signal. Thus, there is no need for reference symbols.

Each of the rejected claims depends upon a parent claim which requires this distinctive pilot signal comprising one of the modulation signals. Accordingly, neither the parent nor the instant dependent claims are anticipated or rendered obvious by the cited reference which fails to disclose this feature.

Withdrawal of the rejection of claim 37 under 35 U.S.C. § 103(a) as being unpatentable over Furuya (U.S. Pat. No. 5,577,087) in view of Alamouti et al. (U.S. Pat. No. 5,933,421) is requested. Claim 37 depends upon claim 33. As noted in the previous rejection, claim 33 describes a transmission apparatus which alternately and periodically subjects an input signal to a first modulation and second modulation. The input digital signal creates a pair of baseband I-Q signal. The first symbol is demodulated by using the second symbol which is a part of the information transmitted by the transmission apparatus. Therefore, unlike Furuya (U.S. Pat. No. 5,577,087), it is not necessary to have separate reference signals comprising a pilot signal. The first signal can be demodulated using only the QPSK signals carrying information.

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Furuya (U.S. Pat. No. 5,577,087) fails to disclose any subject matter which would this render this obvious. The Alamouti et al. (U.S. Pat. No. 5,933,421) reference also fails to disclose any such feature. Accordingly, the combination of the two references will not yield or suggest the subject matter of the present claims.

Withdrawal of the rejection of claims 38, 39, 42-44, 46-49, 53-55 and 57-59 rejected under 35 U.S.C. § 103(a) as being unpatentable over Furuya (U.S. Pat. No. 5,577,087) in view of Alamouti et al. (U.S. Pat. No. 5,933,421) is requested. As noted, Furuya (U.S. Pat. No. 5,577,087) fails to disclose as does Alamouti et al. (U.S. Pat. No. 5,933,421) any system where first and second symbol signals are created from two different modulation schemes, and the second symbol is used as a demodulating signal. Instead, the prior art references rely upon a separate reference signal for effecting the required demodulation.

Withdrawal of the rejection of claims 40 and 51 under 35 U.S.C. § 103(a) as being unpatentable over Furuya (U.S. Pat. No. 5,577,087) in view of Alamouti et al. (U.S. Pat. No. 5,933,421) further in view of Wong (U.S. Pat. No. 5,027,372) is requested. Claims 40 and 41 are dependent on claim 38. Accordingly, they carry all the limitations thereof and are allowable for reasons noted with respect to the previous rejection.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 20402-00568-US from which the undersigned is authorized to draw.

Dated: December 29, 2003

Respectfully submitted,

By 

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